

In the Claims:

The following listing of claims replaces all prior versions and listings of the claims

1. – 16. (canceled)

17. (Currently amended) An arrangement (1) for real-time control of a welding operation that utilizes a welding head (11), said arrangement comprising:

a device (2) for monitoring a welding area of an object (14) during welding, said device (2) comprising

means for reproducing (3) the welding area;

at least one filter (4) arranged in front of or in the ~~reproduction~~ reproducing means (3); and

~~means a source of ultraviolet radiation, other than said welding head (11), for illuminating (5) that is configured and disposed so as to illuminate~~ the welding area with ultraviolet radiation having at least one predetermined ultraviolet wavelength when the welding operation is being performed;

wherein said filter (4) comprises a band-pass filter configured for filtering around the predetermined ultraviolet wavelength;

a CPU-based device computer means (9) having installed thereon image-analyzing means for processing analyzing a reproduction image of the welding area produced by the ~~reproduction~~ reproducing means (3); and

means a controller (10), responsive to said computer means (9), for controlling one of at least one welding that receives information based on analysis of the reproduction image that has been performed by the image-analyzing means and that controls at least one welding parameter [[and]] and/or the position of the welding head (11) on the basis of said information ~~from the reproduction image.~~

18. (Currently amended) The arrangement as recited in claim 17, wherein said ~~image-processing~~ image-analyzing means (9) is adapted to measure weld width from the reproduction image.

19. (Currently amended) The arrangement as recited in claim 17, wherein said ~~image-processing~~ image-analyzing means (9) is adapted to detect at least one of the position of a welding joint, a gap between two parts to be welded together, and geometry of a weld melt.

20. (Currently amended) A method for monitoring a welding area of an object (14) during a welding process that utilizes a welding head, said method comprising:

during said welding process, illuminating the welding area with ultraviolet radiation of a predetermined ultraviolet wavelength by means of a source other than said welding head;

using a means (3) for ~~reproduction~~ reproducing, reproducing the welding area while it is being welded; and

filtering radiation from the welding area in a direction toward said means (3) for ~~reproduction~~ reproducing, said filtering being carried out using a band-pass filter (4) around the predetermined ultraviolet wavelength.

21. (Previously presented) The method as recited in claim 20, wherein said predetermined wavelength lies within a wavelength range of 280-450 nm.

22. (Previously presented) The method as recited in claim 20, wherein said predetermined wavelength is shorter than 400 nm.

23. (Previously presented) The method as recited in claim 20, wherein said predetermined wavelength is shorter than 380 nm.

24. (Previously presented) The method as recited in claim 20, wherein said predetermined wavelength is longer than 300 nm.

25. (Previously presented) The method as recited in claim 20, wherein said predetermined wavelength is approximately 365 nm.

26. (Previously presented) The method as recited in claim 20, wherein said predetermined wavelength is approximately 320 nm.

27. (Previously presented) The method as recited in claim 20, wherein said band-pass filter (4) is adapted for filtering within a range which is smaller than 90 nm FWHM around said predetermined wavelength.

28. (Previously presented) The method as recited in claim 20, wherein said band-pass filter (4) is adapted for filtering within a range which is smaller than 70 nm FWHM around said predetermined wavelength.

29. (Previously presented) The method as recited in claim 20, wherein said band-pass filter (4) is adapted for filtering within a range which is smaller than 30 nm FWHM around said predetermined wavelength.

30. (Previously presented) The method as recited in claim 20, wherein said band-pass filter (4) is adapted for filtering within a range which is approximately 10 nm FWHM around said predetermined wavelength.

31. (Currently amended) The method as recited in claim 20, further comprising:
~~processing using image-analyzing means, analyzing~~ a reproduction image of the welding area produced by the ~~reproduction~~ reproducing means (3); and
controlling at least one of ~~welding parameters and~~ welding parameter and/or the position of said welding head (11) based on information obtained ~~from the processed~~ by said analyzing said reproduction image.

32. (Currently amended) The method as recited in claim 31, wherein the width of a reproduced welding joint is measured by said image-analyzing means[[,]] and said ~~welding parameters and position of the welding head (11)~~ at least one welding parameter and/or the position of said welding head (11) is/are [[are]] controlled on the basis of the measured weld width.

33. (Currently amended) The method as recited in claim 32, wherein the measured weld width is compared with one or more reference values and, in the event of deviation from an approved range being detected, said ~~welding parameters and position of the welding head (11)~~ are at least one welding parameter and/or the position of said welding head (11) is/are adjusted.

34. (Currently amended) The method as recited in claim 31, wherein the position of a welding joint and a gap between two parts to be welded together and the geometry of a weld melt are detected, and said ~~welding parameters and position of the welding head~~ are at least one welding parameter and/or the position of said welding head (11) is/are controlled on the basis thereof.

35. – 55. (Canceled)

56. (Currently amended) A method for monitoring a welding area of an object (14) during a welding process that uses a welding head, said method comprising:

- illuminating the welding area with ultraviolet radiation;
- reproducing the welding area with a means for ~~reproduction~~ reproducing; and
- filtering radiation from the welding area in a direction toward said means (3) for ~~reproduction~~ reproducing, said filtering being carried out using a band-pass filter (4) around a wavelength within the ultraviolet wavelength range, and wherein said band-pass filter (4) is adapted for filtering within a range which is smaller than at least one of the following: (a) 90 nm FWHM around said filter wavelength, (b) 70 nm FWHM around said filter wavelength, (c) 30 nm FWHM around said filter wavelength, and (d) 10 nm FWHM around said filter wavelength.